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S/144/60/000/03/001/017
E194/E455

AUTHOR: Vol'dek, A.I., Doctor of Technical Sciences, Professor, Head of the Chair for Electrification of Industrial Undertakings

TITLE: The Longitudinal Edge-Effect in the Secondary Circuit of Induction Machines and Metal-Pumps with Open Magnetic Circuit

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika, 1960, Nr 3, pp 3-11 (USSR)

ABSTRACT: Induction motors with open magnetic circuits, such as arc stators or motors developing translatory motion, are subject to various side effects including the longitudinal edge-effect in the secondary circuit. The latter is due to secondary currents extending beyond the confines of the active zone located under the stator. A similar effect is observed in a flat linear induction pump for liquid metals, as sketched in Fig 1.   Such a pump consists of two stationary inductor cores carrying three-phase windings which set up a moving magnetic field. This field induces currents in the liquid metal contained between the inductors so setting up forces that

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The Longitudinal Edge-Effect in the Secondary Circuit of Induction
Machines and Metal-Pumps with Open Magnetic Circuit

cause the metal to flow. The longitudinal edge-effect
increases the power loss in the secondary circuit and
also is responsible for some other side effects and so
justifies detailed study. In the case of induction
pumps the problem may be solved by application of
electro-magnetic field theory. Although the considerations
of this article apply more specifically to induction
pumps, they are also applicable to other induction
machines. The mathematical formulation of the problem
is then considered on the basis of Maxwell equations
for a slowly-moving medium, which are written in the
form of Eq (1). This is developed to the form of Eq (3).
It is difficult to derive a general solution for
Eq (3) and a number of simplifying assumptions are
described. They do not introduce appreciable error and
conform to accepted electrical machine design practice.
One of the results of the assumptions is that the field
may be considered as plane-parallel and Eq (3) may be
Card 2/6   written in the form of Eq (5). The field strength in the

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active zone is represented as the sum of the two
components, one being the field set up by the inductor
and the other the field resulting from the currents in
the layer of liquid metal which it is desired to find.
Introducing complex notation and certain minor
modifications, Eq (5) is now written in the form of
Eq (10) which is the final mathematical expression of
the problem. The method of solving Eq (10) is then
explained. A substitution is introduced to exclude
from the left-hand-side terms with the first differential
coefficient and the solution is given in the form of
Eq (12). It is then shown that the expression for
the current density is analogous with the expression for
the secondary field and so further analysis is
concentrated on the latter. Next, the significance of
the various terms in Eq (12) is explained. For example,
the last but one represents the normal moving field of
the secondary circuit which corresponds to the currents
Card 3/6   in the liquid metal that set up the useful force and

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The Longitudinal Edge-Effect in the Secondary Circuit of Induction
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pressure. The first two terms in the right-hand side
of Eq (12) represent secondary fields caused by
longitudinal edge-effects and result from the magnetic
circuit of the pump being open. The expression for the
edge-effect field when analysed, shows it to be moving
like the main field at a speed given by Eq (17). The
distribution and motion of edge-effect fields is
illustrated diagrammatically in Fig 2. A more detailed
idea of the nature of the edge-effect fields can be
obtained from consideration of numerical examples. Three
such examples are considered namely: (1) an induction
pump for aluminium at a temperature of $735°C$;
(2) an induction pump for sodium at a temperature of
$500°C$ and (3) an induction motor with arc stator.
In all three cases, the frequency is 50 c/s, the pole
pitch is 0.15 m and the number of poles is 6. The
initial data for the three examples is in Table 1, and
Table 2 gives the data for the edge-effect fields in
their secondary circuits. Various conclusions are drawn
Card 4/6   from the results given in Table 2. Thus, the speed of

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the edge-effect field increases inversely as the slip
and directly as the specific resistance of the liquid
metal. It is shown that the relationship that has
been derived for the infinitely-wide channel can be
extended without great error to the case of a channel
of finite width, provided that an appropriate correction
is made to the electrical conductivity of the liquid
metal, using Eq (12). It also follows from Table 2 that
in the case of induction pumps, the edge-effect field is
almost entirely damped within the pole pitch. Various
other conclusions are drawn about the nature of the
edge-effect. The relationships for the edge-effect
derived in the present article are confirmed by
available experimental data published in an article by
Rezin (Ref 5). However, further experimental study is
evidently required on the quantitative side of the
problem. The same problem has also been considered by
Shturman and Aronov (Ref 6) but their solution could not
Card 5/6   be used to analyse the effect as it was based on

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      arbitrary assumptions and the determination of
      integration constants and decrements of exponential
      terms was left open. There are 2 figures, 2 tables and
      6 Soviet references.

ASSOCIATION:Tallinskiy politekhnicheskiy institut (Tallin
          Polytechnical Institute)

SUBMITTED: October 24, 1959

Card 6/6

S/144/60/000/05/001/014
E194/E255

AUTHOR: Vol'dek, A. I., Doctor of Technical Sciences, Professor, Head of the Faculty of Industrial Electrification of the Tallin Polytechnical Institute

TITLE: Voltage and Current Asymmetry in Induction Machines and Pumps With Open Magnetic Circuits

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika 1960, Nr 5, pp 3-9 (USSR)

ABSTRACT: In induction machines and pumps with open magnetic circuit, there are pulsating fields in addition to the normal moving magnetic field. The change in magnetic induction along the air gap is given by expression (1), wherein the first term corresponds to the normal moving field, the second to a pulsating field which varies along the air gap according to a hyperbolic cosine law, and the third to a pulsating field which varies along the air gap according to a hyperbolic sine law. The pulsating field induces currents in the secondary circuits of the machines, increasing the losses. The pulsating fields also induce self-induction emf's in the primary windings. The emf's induced by the pulsating fields in the individual phases
Card 1/5   either coincide in phase or are in phase opposition,

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Voltage and Current Asymmetry in Induction Machines and Pumps With
Open Magnetic Circuits

whilst the normal moving field induces emf's displaced
by 120°C. Therefore, when pulsating fields are present
the total emf's are not symmetrical, and with a
symmetrical supply voltage the currents in the individual
phases are also not symmetrical. The negative and zero
phase-sequence currents cause stray losses; the former
set up a reverse field, which is very undesirable. The
present article is concerned with determination of the
symmetrical components of the currents and voltages in
the windings. Fig 1a shows a possible winding diagram
of a machine with open magnetic circuit; it is a three-
phase concentric single-layer winding. The distribution
of phase zones of the winding is indicated in the second
diagram, Fig 1b. The next two diagrams in the figure
show curves of the pulsating fields and the fifth the
curve of the main moving field. The relative phases of
these fields are discussed and the vector diagram of
currents and flux linkages shown in Fig 2 is derived.
Card 2/5 For other types of windings the flux linkages are of

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Voltage and Current Asymmetry in Induction Machines and Pumps With
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similar character. Differences in winding design make
no fundamental difference and may be considered separately.
Accordingly, concentric windings alone are considered
in full. A vector diagram of the voltages set up by the
pulsating magnetic field is given in Fig 3. The action
of the pulsating fields may be allowed for by appropriate
selection of the impedances of the individual phases, as
in Eqs (2) and (3). The method of symmetrical components
is then used to determine currents and phases in the
winding, taking account of the ohmic resistance, the
leakage reactance and the inductance due to the main
moving field. For a symmetrical winding these values
are the same for all three phases and are given by
expression (6). Expressions are then written for the
zero, positive and negative phase-sequence voltages and
impedances for one phase. Eqs (10) are thereby derived
for currents in a star-connected winding and Eqs (11)
for a delta-connected winding. Impedance expressions
are then derived and substituted into the current
Card 3/5 equations to give expressions for the current and

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Voltage and Current Asymmetry in Induction Machines and Pumps With
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voltages in the phase windings. The simplifications that
result from ignoring saturation and in certain cases
ohmic resistance are then considered, leading to the
simplified impedance expressions (14) and the current and
voltage expressions (15). Negative phase-sequence currents
are given by expression (16). Fig 4 shows a vector diagram
of phase voltages and currents with the star-connection,
derived from expressions (15) and (16). In the case
considered, the powers of individual phases are not equal.
The corresponding equations for the delta-connection
are given by expressions (17) and (18), and the
corresponding vector diagram is shown in Fig 5. [Note
that the sub-title to Fig 5 claims that it is for the
star-connection but this appears to be a misprint.]
Analysis shows that, other things being equal, the
current asymmetry is greater in the case of the delta-
connection or star with neutral connection than in the
case of star without neutral. In the first case the
negative phase-sequence current is greater and there is
Card 4/5   also a zero phase-sequence current. The zero and

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Voltage and Current Asymmetry in Induction Machines and Pumps With Open Magnetic Circuits

negative phase-sequence currents and voltages are smaller when the shunting effect is reduced and when the influence of saturation is small. The formulae derived here may be applied to experimental data to calculate characteristics of the machines. There are 5 figures and 6 Soviet references.

ASSOCIATION: Tallinskiy politekhnicheskiy institut (Tallin Polytechnical Institute)

SUBMITTED: March 2, 1960

Card 5/5

Vol'DEK, Aleksandr Ivancvich

10.4000

80152
8/105/60/000/05/05/028
B007/B008

AUTHOR: Vol'dek, A.I., Professor, Doctor of Technical Sciences

TITLE: Electromagnetic Pumps for Liquid Metals

PERIODICAL: Elektrichestvo, 1960, No. 5, pp. 22-27

TEXT: A survey of the electromagnetic pumps for liquid metal is given here
mainly on the basis of English language publications (Refs. 1-3). Two groups
of such pumps are distinguished: 1) Conduction pumps: The current flowing through
the liquid metal is produced by a foreign source of the emf; 2) Induction
pumps: the current is inducted by the magnetic field. Each group comprises in
its turn a number of pump types. The following pumps are discussed here:
1) d.c. pumps. They belong to the conduction pumps and are used in nuclear
engineering (Refs. 1-3). Their drawback is the fact that sources for high
amperages and low voltages are required. 2) Single-phase a.c. pumps are used
exclusively for laboratory purposes, since their efficiency amounts to 10-15%
at best. 3) Flat linear induction pumps (Fig. 5) are used in nuclear engineer-
ing. The a.c. windings are complicated and require good insulation. Boundary
effects are observed which influence the operation of the pump. The transverse

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Electromagnetic Pumps for Liquid Metals

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B007/B008

boundary effect at the distribution of the current in the liquid metal layer (Refs. 4,5) is one of them. Constructional hints for the reduction of the influence of the transverse boundary effect are given here. With the aid of a two-layer winding with corresponding design of its final sections it is possible to reduce the amplitude of the pulsating field to one-tenth and less (Ref. 6). 4) Cylindrical linear induction pumps are similar to the flat linear induction pumps according to their mode of action, but their efficiency is somewhat higher. Their deficiences are: complicated manufacturing method and complicated mounting of the inner core (Fig. 7), as well as the impossibility of removing the inductor without detaching the connection between pump and pipe line. 5) Spiral induction pumps are rarely being manufactured at present. 6) Induction pumps with rotating inductors are built only as single experimental samples according to foreign information. It is stated in conclusion that very many electromagnetic pumps were built and tested in the USA and Great Britain, whilst a number of theoretical problems were worked out more extensively in the USSR. The problems of the hydraulics of liquid metals in a magnetic field were investigated insufficiently. There are 7 figures and 6 references, 3 of which are Soviet.

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Electromagnetic Pumps for Liquid Metals

80152
S/105/60/000/05/05/028
B007/B008

ASSOCIATION: Tallinskiy politekhnicheskiy institut (Tallin Polytechnic Institute)

SUBMITTED: December 7, 1959

Card 3/3

VOL'DEK, A.I.

Magnetizing forces in three-phase fractional windings. Trudy LPI
no.209:254-280 '60.   (MIRA 14:2)
    (Electric machinery, Synchronous—Windings)

VOL'DEK, A.I.

General problems can ethods of etermining the stray inductance
of electric machines and application of those ot ods to asynchronous
and synchronous machines. Trudy LPI no. 209:241-253 '60.
(IIRA 14:2)

(Electric machinery)   (Inductance)

VOL'DEK, Aleksandr Ivanovich, doktor tekhn.nauk,prof.

Longitudinal marginal effect in the secondary circuit of induction
machines and induction pumps for molten metals with an open magnetic
circuit. Izv. vys. ucheb. zav.; elektromekh. 3 no.3:3-11 '60.
                                                        (MIRA 13:10)

1. Zaveduyushchiy kafedroy elektrifikatsii promyshlennykh predpryatiy
Tallinskogo politekhnicheskogo instituta.
                (Pumping machinery, Electric)
                (Electric motors, Induction)

VOL'DEK, A.I., doktor tekhn.nauk, prof.

Dispersion on the tips of gear teeth of electric machinery.
Vest. elektroprom. 32 no.1:60-62 Ja '61.   (MIRA 14:3)
                    (Electric machinery)

KHUTORETSKIY, G.M.; Prinimala uchastiye ZAGORODNAYA, G.A., inzh.;
VOL'DEK, A.I., doktor tekhn. nauk, red.

[Design of modern two-pole turbogenerators; manual for the
preparation of a course and diploma project] Proektirovanie
i raschet sovremennykh dvukhpoliusnykh turbcgeneratorov;
uchebnoe posobie k kursovomu i diplomnomu proektirovaniiu.
Leningrad, Leningr. politekhn. in-t, 1962. 150 p.
(MIRA 17:4)

S/144/62/000/006/001/009
D230/D308

96 9354

AUTHOR: Vol'dek, A.I., Doctor of Technical Sciences, Profes-
            sor

TITLE: Currents and forces in a liquid-metal layer in cyl-
            indrical induction pumps

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Elektro-
            mekhanika, no. 6, 1962, 587-592

TEXT: .The analysis is made on a cylindrical induction
pump, fed from a three-phase supply and having a travelling magnetic
field along the axis of the pump. Currents are induced in the ring
layer of the liquid metal by the field; as a result of interaction
between the field and the currents, forces are set-up within the
metal. Expressions for the magnetic currents in the liquid metal
are deduced and the problem is solved. The self-induced electric
field intensity, due to currents flowing within it, is determined
analytically. An expression for the phase angle between the elec-
tric field intensity and the complex amplitude of the surface cur-
rent density is deduced; this expression is extended to the case
Card 1/2

S/144/62/000/008/001/002
D230/D308

AUTHOR: Vol'dek, A.I., Doctor of Technical Sciences, Professor

TITLE: Electromagnetic phenomena in induction machines and
pumps with an open magnetic circuit

PERIODICAL: Elektromekhanika, no. 8, 1962, 839 - 848

TEXT: One of the fundamental theoretical problems of the induction
machines and pumps is the magnetic field structure in the air gap.
Following the initial theoretical analysis of this problem by G.I.
Shturman (Elektrichestvo, no. 10, 1946, p. 43), numerous papers were
published on this subject as an extension of that work, or its re-
vision and criticism. In the present work a critical review of those
papers is presented and fields of further study are indicated. The
principle of magnetic lines continuity is formulated through a con-
dition of equality to zero of the total current in the air gap. The
parameters of the induction pumps should be chosen so as to minimi-
ze the transverse boundary effect; it is found experimentally that
this effect is small in the case of pumps manufactured both inside
and outside the USSR. Adverse influence of the thickness edge
Card 1/2

Electromagnetic phenomena in ...   S/144/62/000/008/001/002
                                            D230/D308

effects is discussed; in this case, the inside layer of the liquid metal becomes screened and the magnetic resistance to inductor flux rises considerably. Need for further study is stressed to solve the following: 1) Design problems of compensation of pulsed induction fields, 2) study of the longitudinal boundary effect in the seconda- ry circuit, 3) evaluation of the electrical circuit parameters, and 4) generalized design methods. There are 4 figures.

ASSOCIATION: Leningradskiy politekhnichesky institut (Leningrad
             Polytechnic Institute)

SUBMITTED: July 13, 1960

Card 2/2

VOL'DEK, Aleksandr Ivanovich, doktor tekhn.nauk, prof.

Vector diagrams and inductive impedances of a synchronous machine.
Izv.vys.ucheb.zav.; elektromekh. 5 no.3:329-337 '62. (MIRA 15:4)

1. Zaveduyushchiy kafedroy elektricheskikh mashin Leningradskogo
politekhnicheskogo instituta.
(Electric machinery—Synchronous)

VOL'DEK, A.I., doktor tekhn.nauk, prof.

Principles of a method for calculating the magnetic fields of
the arm end sections of the windings of electrical machines.
Elektrichestvo no.1:41-48 Ja '63.   (MIRA '16:2)

1. Leningradskiy politekhnicheskiy institut im. Kalinina.
              (Electric machinery-- Windings)

KOSTENKO, Mikhail Poliyevktovich, akademik; PIOTROVSKIY, Lyudvik
Mar'yanovich; CHECHET, Yu.S., prof., retsenzent;
USSER, A.S. kand. tekhn. nauk, red.; VOL'DEK, A.I.,
doktor tekhn. nauk, red.; PRUSS-ZHUKOVSKIY, V.V., nauchn..
red.; ALEKSEYEVA, Ye.A., red.

[Electrical machinery] Elektricheskie mashiny. Izd.2.,
Moskva, Energiia. Pt.1. 1964. 547 p. (MIRA 18:1)

VOL'DEK, A.I.

Methodology for calculating the magnetic vector potential of the
front winding section of electrical machines. Trudy LPI no.241:
5-17 '64.

Dependence between the energy of the magnetic field and inductances
of multiphase windings. Ibid.:18-22   (MIRA 18:4)

VOL'DEK, Aleksandr Ivanovich, doktor tekhn. nauk, prof.

    Methods for taking into account the serration of the rotor and
stator on their magnetic field. Izv. vys. ucheb. zav.; elektromekh.
7 no.5:638-641 '64.   (MIRA 17:9)

1. Zaveduyushchiy kafedroy elektricheskikh mashin Leningradskogo
politekhnicheskogo instituta.

VERTE, Leonard Arturovich; VOL'DEK, A.I., doktor tekhn. nauk, prof.
    retsenzent; YANES, Kh.I., kand. tekhn. nauk, dots.,
    retsenzent; ROZENTSVEYG, Ya.D., red.

    [Electromagnetic conveying of liquid metal] Elektromagnit-
    nyi transport zhidkogo metalla. Moskva, Metallurgiia,
    1965. 235 p.   (MIRA 18:3)

VOL'DEK, A.I., doktor tekhn. nauk, prof.

Compensation of a fluctuating magnetic field in asynchronous
machines and induction pumps with open magnetic circuits.
Elektrichestvo no.4:50-53 Ap '65.   (MIRA 18:5)

1. Leningradskiy politekhnicheskiy institut imeni Kalinina.

L 22429-66   EWT(d)/EWP(k)/EWP(l)

ACC NR: AP6013517   SOURCE CODE: UR/0105/65/C00/011/0036/0036

AUTHOR: Vol'dek, A. I.; Domanskiy, B. I.; Drannikov, V. S.; Zalesskiy, A. M.;
Kamenskiy, M. K.; Kantan, V. V.; Kashkarov, G. Ye.; Kizevetter, Ye. I.; Klimov, A. N.;
Kovalev, N. N.; Kostenko, M. P.; Kostenko, M. V.; Neyman, L. R.; Pavlov, G. M.;
Ravdonik, V. S.; Ruzin, Ya. L.; Sidorov, M. M.; Shramkov, Ye. G.

ORG: none

TITLE: Professor Sergey Vasil'yevich Usov, on his 60th birthday

SOURCE: Elektrichestvo, no. 11, 1965, 86

TOPIC TAGS: academic personnel, electric engineering personnel, electric power plant

ABSTRACT: The noted Soviet power specialist Professor S. V. USOV,
who was 60 years old last September, graduated from the Leningradskiy
elektrotekhnicheskiy institut (Leningrad Electrotechnical Institute)
in 1930 and then, for the next twenty years, worked for the
Lenenergo power system of which he became chief engineer in 1939.
During the blockade of Leningrad he was head of the group which
in 45 days managed to connect the beleaguered city with the
Volkhovskaya hydroelectric station across the frozen Ladoga lake.
He also carried out the adaptation of the boilers of the Leningrad
thermal power plant to consume the locally available fuel. In 1949
he became professor and head of the Department of Electric Stations

Card 1/2   UDC: 621.311.1

L 22429-66

ACC NR: AP6013617   2

of the Leningradskiy politekhnicheskiy institut (Leningrad Poly-
technic Institute) im. Kalinin. In addition to his fruitful
pedagogical endeavors, he published 50 scientific papers. From
1955 to 1958 he was a deputy director for scientific work. In
1964 he was elected Dean of the Electromechanical Faculty of the
Institute. He joined the Party in 1942; from 1943 to 1955 was
deputy president of the central board of the NTOEP /Nauchno-
.tekhnicheskoye obshchestvo energeticheskoy promyshlennosti;
Scientific Engineering Society of Power Industries/, president of
the section of power systems of NTOEP, and member of numerous
scientific-engineering councils. For many years he was a member
of the editorial board of the journal Elektricheskiye stantsil
(Electric Stations). For his contributions in the field of power
engineering S. V. USOV was awarded the Order of Lenin, Order of
Red Banner of Labor, Order of Red Star, Badge of Distinction, and
the medals: "For the Defense of Leningrad" and "For Distinguished
Service During the Patriotic War." Orig. art. has: 1 figure. [JPRS]

SUB CODE: 10 / SUBM DATE: none

Card 2/2   BLG

L 31999-66   EWT(1)/EWT(m)/T-2   ED.T

ACC NR: AP6011519   SOURCE CODE: UR/0382/66/000/001/0116/0120

AUTHOR: Vol'dek, A. I.

ORG: none

TITLE: Basis for unification of computational methods in the design of annular and flat induction pumps

SOURCE: Magnitnaya gidrodinamika, no. 1, 1966, 116-120

TOPIC TAGS: magnetic induction, induction pump, REYNOLDS NUMBER, MAGNETIC PUMPING

ABSTRACT: The two types of pumps, annular and flat, can be treated as two identical cases in the limit. This asymptotic behavior is utilized to provide a set of curves expressing the coefficient of magnetic induction, the coefficient associated with the air gap, and the coefficient of the magnetic Reynold's number, which in turn makes possible the application of identical formulae to determine the operation of both types of pumps. These curves provide a measure of the difference between the annular pump and the flat pump of infinite width; they also determine when the electrical characteristics of the two types are sufficiently close to consider their operation identical. The computation of coefficients is based on [A. I. Vol'dek, Izv. VUZ - Elektromekhanika, 1959, 1, 3; 1962, 6, 3; and 1958, 12, 14.]. These have been shown to agree with test measurements made on many pumps. The author thanks Engineer N. A. Soldatenkova __

UDC: 621.313.39:538.4

Card 1/2

L 31998-66

ACC NR: AP6011519

for computing the curves shown in the graphs. Orig. art. has: 5 figures, 14 formulas.

SUB CODE:/3,20/   SUBM DATE: 10Jul65/   ORIG REF: 004/   OTH REF: 001

Card 2/2

ACC NR: AP6034908   SOURCE CODE: UR/0382/66/000/002/0135/0138

AUTHOR: Vol'dek, A. I.; Rannu, L. Kh.; Yanes, Kh. I.

ORG: none

TITLE: On certain new orientations in the development of special windings for devices with a traveling magnetic field.

SOURCE: Magnitnaya gidrodinamika, no. 2, 1966, 135-138

TOPIC TAGS: magnetic induction, winding, magnetic field, MHD generator

ABSTRACT: Special windings are required for devices of this kind, such as liquid-metal induction pumps, MHD induction generators with a liquid-metal working fluid, steel-furnace melt stirrers, rotators of molten metal in tube-casting installations, etc. because this involves substantial linear current loads and often requires internal water-cooling of the windings. In this connection, the article describes the design and specifications of more suitable windings which are beginning to be introduced. They have the shape of flat concentric coils, which greatly simplifies their fabrication and installation and enhances their operating reliability. Under normal conditions their performance is inferior to that of conventional helical windings, but

Card 1/2   UDC: 621.313.39:538.4

ACC NR: AP6034908

once the nonmagnetic clearance between two ferromagnetic cores increases to a considerable extent, and thus necessitates a marked increase in the linear current load of the windings (as is the case with the electromagnetic induction pump and other similar devices with a traveling or rotating magnetic field) these new flat concentric coil-shaped windings outperform their conventional counterparts and display such additional advantages as greater compactness of the inductor and more or less complete elimination of nonuniformity of coil spacing owing to the shortening of this spacing. Orig. art. has: 1 table.

SUB CODE: 12, 09, 13/ SUBM DATE: 17Dec65/ ORIG REF: 004

Card 2/2

VOL' DEYT, A. V.

PHASE I BOOK EXPLOITATION   SOV/6432

Grishin, Vasiliy Koz'mich, Mikhail Grigor'yevich Glazunov, Artur Geregirrovich
 Arakelov, Aleksandr Vladimirovich Vol'deyt,and Gertruda Semenovna Make-
 donskaya

Svoystva litiya (Properties of Lithium) Moscow,Metallurgizdat, 1963. 115 p.
 Errata slip inserted. 2700 copies printed.

Ed. of Publishing House: O. M. Kamayeva; Tech. Ed.: A. I. Karasev.

PURPOSE: This book is intended for engineers, scientific research workers, and
 advanced students.

COVERAGE: The book describes the physical, thermodynamic, and basic chemi-
 cal properties of lithium which are of great importance in the design and opera-
 tion of various units employing liquid-metal heat carriers. Problems of the
 corrosive activity of lithium in its interaction with the most important struc-
 tural materials used in building such units are reviewed. Special features of

Card 1/6

Properties of Lithium (Cont.)   SOV/6432

the technology of lithium—problems of its purification, preparation, melting, storage, and transportation—are discussed along with the preparation of operational units. . Basic information on safety precautions is given. The authors thank Doctor of Technical Sciences Professor A. V. Ryabchenkov, Candidate of Technical Sciences G. G. Konradi, V. A. Ulanov, Ye. V. Balashov, and K. N. Klyagin for their assistance. Most of the 157 references are Soviet.

TABLE OF CONTENTS:

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GRISHIN, Vasiliy Koz'mich; GLAZUNOV, Mikhail Grigor'yevich; ARAKELOV,
    Artur Gereginovich; VOL'DEYT, Aleksandr Vladimirovich;
    MAKEDONSKAYA, Gertruda Semenovna; KAMAYEVA, O.M., red.izd-va;
    KARASEV, A.I., tekhn. red.

[Properties of lithium]Svoistva litiia.   Moskva, Metallurgiz-
dat, 1963.   115 p.   (MIRA 16:3)
                          (Lithium)

ACC NR: AT7004129   SOURCE CODE: UR/3152/66/000/013/0033/0041

AUTHOR: Voldiner, I. I.; Kolenkov, E. V.

ORG: None

TITLE: Use of the dynamic characteristics of reflected waves in prospecting reef-origin structures using RNP

SOURCE: Razvedochnaya geofizika, no. 13, 1966, 33-41

TOPIC TAGS: signal reception, shock wave reflection, seismic wave, seismologic station, geology, geologic survey, geologic exploration

ABSTRACT: Search and prospecting of reef-origin structures in the southern Urals area is performed by many geophysical methods, but primarily by RNP [controlled direction reception].   Only the kinematic characteristics of the reflected waves are taken into consideration.   The use of the dynamic characteristics of the reflected waves will make it possible to expand the prospecting capabilities of the method.   The results of a study of the dynamic characteristics of reflected waves separated by RNP on the area of one reef in the Bashkir pre-Ural area are cited and indicate that the study of the absorption properties of the medium through which the waves propagate is of significance in prospecting work on reef structures.   Studies

Card 1/2

' ACC NR: AT7004129

such as this require practically no additional expenditures when magnetic seismic
stations are used in the field operations.   Orig. art. has: 4 formulas and 6 figures.

SUB CODE: 08/SUBM DATE: None/ORIG REF: 006

Card 2/2

VOL'DMAN, G.M.; ZELIKMAN, A.N.

Equation for calculating the efficiency of a continuous action
fluidized bed. Izv. vys. ucheb. zav.; tsvet. met. 5 no.4:73-79
'62.
(MIRA 16:5)

1. Moskovskiy institut stali, kafedra metallurgii redkikh metallov.
(Fluidization)

BRUTER, I.; VOL'DMAN, V.

SZS-10 field unit for the preparation of poisonous chemical
solutions. Trakt. i sel'khozmash. no.12:33-34 D '65.
(MIRA 18:12)

1. Gosudarstvennoye spetsial'noye konstruktorskoye byuro po
mekhanizatsii rabot v sadakh i vinogradnikakh.

VOLDMAN, V. L.

Influence of Rate of Cooling on Properties of Lubri-
cating Oils at Low Temperatures. (In Russian.) V. L.
Voldman. *Kolloidnyi Zhurnal* (Colloid Journal), v. 11,
May-June 1949, p. 137-140.
  Results of experimental investigation of the above are
tabulated. 11 ref

VOL'DMAN, I.

The brigade work method in taxicab fleets. Avt.transp.34 no.3:
8-10 Mr '56.   (MIRA 9:7)

1.Direktor Rizhskogo taksometernogo parka.
                    (Riga--Taxicabs)

VOL'DMAN, Yefim Antonovich; SHUMOV, A.V., red.; MAL'KOVA, N.V., tekhn. red.

[Brigade system of working on light taxis; practices of group of innovators of a Riga taxi fleet] Brigadnyi metod raboty na legkovykh taksi; iz opyta kollektiva novatorov Rizhskogo taksomotornogo parka. Moskva, Nauchno-tekhn. izd-vo avtotransp. lit-ry, 1956. 55 p.
(Taxicabs--Maintenance and repair)   (MIRA 11:7)

VOL'DMAN, Yu.G., inzh.

Multiloop safety device. Energetik 6 no.10:15-16   O '58.
         (Boilers--Safety measures)   (MIRA 11:10)

AUTHOR: Vol'dman, Yu.G., Engineer   SOV-91-58-10-13/35

TITLE: A Multi-Loop Safety Device (Mnogopetel'noye predokhranitel'-
              noye ustroystvo)

PERIODICAL: Energetik, 1958, Nr 10, pp 15-16   (USSR)

ABSTRACT: The author states that in issue Nr 6 (1957) of this magazine,
              an article appeared by Penkin, S.I., Technician, entitled
              "Multi-Loop Release Safety Devices for Low-Pressure Steam
              Boilers". The author says that Penkin described the work-
              ing principle of the device correctly, but its design is
              complicated, and the height of the device is open to doubt.
              The height of a safety device can be calculated accurately;
              this has been done by Yermolayev, I.M., P'yankov and Bibikov.
              Safety devices computed and developed by the State Institute
              for Planning of the Azerbaydzhan Oil and Gas Industry (GI-
              PROAZNEFT') have given satisfactory and trouble-free service
              for a considerable period. The author says that he himself
              helped to put into operation a safety device completed ac-
              cording to the plans of GIPROAZNEFT in the boiler-house of
              an oil concern in Baku. Two double-flued boilers each hav-
              ing a heating surface of 70 sq meters were installed in the
              boiler-house. The lining of the boilers was in the open.
Card 1/2   A 3.5 meters high building was built for the personnel; on

A Multi-Loop Safety Device

SOV-91-58-10-13/35

the front walls of the building were attached two double-looped safety devices for each boiler. The working pressure in the boilers was 0.7 atmospheres and the height of the safety device 2.54 meters. The pressure in the boilers rose gradually to 0.7 atmospheres (according to the manometer) in the course of an hour. As soon as the pressure gage needle reached 0.73 atmospheres, the water was immediately ejected from the safety device, and steam was released. After this the fuel supply stopped, the pressure gradually sank to zero, and the boiler was switched into operation once more until the pressure reached 0.7 atmospheres. The author concludes by saying that these safety devices have worked successfully during repeated tests and are of much simpler design than those described by Penkin. There is one diagram and 3 Soviet references.

1. Boilers---Safety devices

Card 2/2

VOL'DNER, V. A.

627 Pamyarka dlya rabochikh na birumnykh bazakh. M., AUTOTRANSIZDAT, 1954.
     31s. s ill. 16 sm. (Tekhnika bezopasnosti na dop. rabotakh). 5.000 ekz.
     35k. - (54-55205)p   625.85 + 666.89): 658:283

SO: Knizhnaya Letopis, Vol 1, 1955

VOLDOLARSKIY, V.I.; TEREGOV, A.F.

    Optimum antennas for monopulse phase radar stations. Izv. vys. uchsb.
    zav.; radiofiz. 7 no.3.406-414 '64.   (MIRA 17:11)

VOL' DO:OVCHARYE:IKO, V.

30211

Na Pitsundskikh ozyerakh. /¯Gyeogr. ochyerk_7. Vokrug svyeta, 1949, No. 9, s. 58-59.

SO: LETOPIS' NO. 34

VOLDRICH, Frantisek, inz.

Use of automatic computer in planning the return of unloaded coal railway cars to mines. Doprava no.8:278-280 '62.

VOLDRICH, Frantisek, inz.

Evaluation of load currents on automatic computers. Doprava
no.9:312-314 '62.

ZEMAN, K.; TOMANEK, R.; VOLDRICH, L.

Further contributions to toxic effects of neomycin on the organ of
hearing. Cas.lek.cesk 99 no.51:1592-1596 16 D '60.

1. Otolaryngologicka klinika KU v Praze, prednosta akademik Antonin
Precechtel.

(DEAFNESS etiol)   (NEOMYCIN toxicol)

KUSAK, V.; VOLDRICH, L.

Thrush anginas. Cesk.otolar.9 no.6:348-352 D '60.

1. ORL klinika fakulty vseobecneho lekarstvi KU v Praze,
prednosta akademik A. Precechtel, ORL laborator CSAV, vedouci
akademik A. Precechtel.
            (TONSILLITIS etiol)
            (MONILIASIS compl)

TICHY, S.; ROTTER, T.; WOLDRICH, L.

Changes in the respiratory system ...
Cesk. otolaryng. ...

. Effect of Aspergilla niger on the respiratory system in the manufacture of citric acid. Ibid.:220-221

1. Otolaryngologicka laborator Ceskoslovenske akademie ved v Praze (vedouci akademik A Precechtel) a Otolaryngologicka klinika fakulty vseobecneho lekarstvi Karlovy University v Praze (prednosta prof. dr. K. Sedlacek).

VOLDRICH, Lubos

Accelerated decalcification of the bone. Cesk.otolar.10 no.1:
51-52 F '61.

1. Klinicka ORL laborator CSAV v Praze, vedouci akademik
Ant.Precechtel.
        (CALCIFICATION)
        (TEMPORAL BONE)

VOLDRICH, L.

Relation of neomycin ototoxicity to loading of the auditory
analyzer with subtraumatic noise. Cesk. otolaryng. 12 no.4:
205-207 Ag '63.

1. Otolaryngologicka laborator CSAV v Praze, vedouci akad.
A. Precechtel.
             (NEOMYCIN)   (NOISE)   (EAR)   (HEARING)

VOLDRICH, L.; KUSAK, V.; TICHY, S.

Effect of Torula utilis and Candida arborea on the respiratory
tract in workers employed in the production of yeast. Cesk.
otolaryng. 14 no.6:368-371 D '65.

1. ORL laborator Ceskoslovenske akademie ved v Praze (reditel
akademik A. Precechtel) a Otolaryngologicka klinika fakulty
vseobecneho lekarstvi Karlovy University v Praze (prednosta
prof. dr. K. Sedlacek).

VOLDRICH, Milos doc. MUDr

Prosthesis for large unilateral defects. Cesk.stomat. no.3:84-91
May 55

1. Z II. stomatologicke kliniky K.U. v Praze; prednosta prof.
Dr Fr.Neuwirt
        (DENTAL PROSTHESIS
            for large unilateral defects)

VOLDRICH, Milos

SURNAME, Given Names

(3)

Country: Czechoslovakia

Academic Degrees:
        Second Stomatological Clinic (II. stomatologicka klinika);
Affiliation: Director: Docent F. URBAN, MD.

Source: Prague, <u>Prakticke Zubni Lekarstvi</u>,Vol IX, No 5, June 1961,
             pp 129-136.

Data: "An Outline of Prosthetic Treatment in Some Typical Forms of
        Parodontitis."

Authors: VOLDRICH, Milos, Docent, MD,
        SKACH, Miroslav, Assistant, MD

211

GPO 981643

VOLDRICH, Milos, Doc.MUDr; BAZANT, Vratislav, doc.MUDr.

Critical considerations on the effect of synthetic resins on
the living tissue. Cesk.stomat. no.4-5:120-132 Jl '55.

1. Z II. stomatologicke kliniky KU, predn.prof. MUDr Frant.
Neuwirt.
        (RESINS, effects,
            on mouth tissue)
    ' (MOUTH, physiology,
            eff. of resins)

VOLDRICH, LUB.

JIROVEC, Otto, prof. Dr; SOYKA, Otto, MUDr; ZAZVORKA, Zdenek, MUDr;
Voldrich, Lub., MUC

Three cases of unusual parasite Sergentella in man. Cesk. hyg.
epidem. mikrob. 2 no.2:111-114 Apr '53.

1. Parasitologicky ustav, III. interni klinika, Ustredni laboratore
St. nemocnice v Moste a I. pathologicko-anatomicky ustav Karlovy
university v Praze.
    (PROTOZOA,
        Sergentella spiroides in men)

Epidemiology

CZECHOSLOVAKIA   UDC   356.33:616.921.5-022.73-036.22

SKOCIL, Vladimir, Dr, Lieut. Col.; BRUJ, Jaromir, Dr, Lieut. Col.;
VOLDRICH, Zdenek, Dr Lieut.

"Epidemic of Influenza Caused by Virus B_1 and Mycoplasma Pneu-
moniae(Eaton's Agent) in a Military Unit and the Ensuing Com-
plications."

Prague, Vojenske Zdravotnicke Listy, Vol 36, No 1, Feb 67, pp
15 - 19 .

Abstract: An epidemic which occurred in a unit stationed in
West Bohemia during November of 1965 is discussed. The charac-
teristic aspects of the epidemic were the high proportion of the
persons infected (32.9% of the soldiers), high proportion of
lung complications (20%), and a high proportion of overall com-
plications (31%). Before the epidemic erupted the presence of
Mycoplasma Pneumoniae was discovered in the unit. Virus B_1
acted either on those who were weakened by the Mycoplasma or
acted simultaneously with it. 1 Figure, 6 Tables, 10 Western,
13 Czech, 2 USSR references.
1/1

VOLDUTSKAYA, Z.M.

SUMAROKOV, V.P.; VOLDUTSKAYA, Z.M.; BORISOV, P.D.

Acid balance during the production of acetic acid from non-
distilled acid water. Gidroliz. i lesokhim. prom. 9 no.8:
9-11 '56.   (MLRA 10:2)

1. TSentral'nyy nauchno-issledovatel'skiy lesokhimicheskiy
institut.
                    (Acetic acid)

CZECHOSLOVAKIA/Chemical Technology - Chemical Products and   H-28
                 Their Application. Food Processing Industry.

Abs Jour   : Ref Zhur - Khimiya, No 17, 1958, 59175

Author   : Hypr Igor, Volec Jan
Inst   : -
Title   : Instructions for the Selection of Samples of Brine
                from Various Depths During the Salting of Meat.

Orig Pub   : Prumysl potravin, 1957, 8, No 2, 93-95

Abstract   : For the selection of a sample of brine from the surface,
                an apparatus is utilized made from a test tube with a
                weight (60 g) and a sterile rubber stopper. Tubing is
                attached to the upper end of the test tube. The test
                tube is submerged under the surface of the brine and is
                quickly filled. After extraction, it is quickly closed
                with the sterile stopper. During the separation of a
                sample from any depth, a test tube with a weight is
                utilized, a closed rubber stopper, in which an indenta-
                                                                    tion
Card 1/2

Abs Jour   : Ref Zhur - Khimiya, No 17, 1958, 59175

            is made in the shape of a groove broadened toward the
            lower end of the stopper. The stopper is inserted half-
            way into the test tube, to the upper end of which is
            attached the tubing, mounted on a spool. The depth of
            immersion is determined by the length of the unwound
            tubing. For the selection of a sample from the bottom
            of the vat, an inverted tube is used with an opening
            in the bottom. In the opening, a glass small stick with
            an enlargement on both ends is introduced. To the upper
            end of the small stick, tubing is attached. As soon as
            the test tube reaches the bottom of the vat, the tubing
            deflects, and the small stick ceases to close the opening
            in the bottom of the test tube.

Card 2/2

KOCHUROV, A.S.; NAZAROV, A.G.; ZASYPKIN, A.G.; GIMMEL'MAN, N.R.
[deceased]; VOLEGOV, A.F.; NESTEROV,A.A.; FILIPPOV, A.S.,
kand. tekhn. nauk, retsenzent; RYAZANOV, K.I., inzh.,
retsenzent; ZAKHAROV, B.P., inzh., nauchn. red.; YERMAKOV,
N.P., tekhn. red.

[Handbook for mold makers] Spravochnik rabochego-model'-
shchika. Izd.2., perer. i dop. Moskva, Mashgiz, 1963.
360 p.   (MIRA 17:2)

GIMMEL'MAN, Nikolay Robertovich; KOCHUROV, Aleksey Stepanovich;
Prinimali uchastiye: BORISOV, A.P., inzh.; ZHIDKIKH, I.A.,
inzh.; VOLKGOV, A.V., inzh.; SHABALIN, L.A., inzh.
MIKHEYEV, N.P., kand.tekhn.nauk, retsenzent; ABAKUMOV, S.V.,
inzh., retsenzent; ZASYPKIN, A.G., inzh., retsenzent;
ZALOZHNEV, G.N., inzh.; retsenzent; KLOTSMAN, M.I., inzh.,
retsenzent; KOLMOGOROV S.M., inzh., retsenzent; BLANK, E.M.,
inzh., red.; DUGINA, N.A., tekhn.red.

[Making models] Model'noe proizvodstvo. 3. perer. izd.
Moskva, Mashgiz, 1961. 295 p.   (MIRA 14:12)
          (Engineering models)
   (Molding (Founding)--Equipment and supplies)

VOLEGOV, A.I., assistent

Characteristics of the effect on the central nervous system
of ether in its inhalation and subcutaneous introduction.
Azerb. med. zhur. 42 no.4:27-35 Ap '65.   (MIRA 18:9)

1. Iz kafedry normal'noy fiziologii (zav.- prof. G.I. Kositskiy)
II Moskovskogo ordena Lenina meditsinskogo instituta (dir.- doktor
med. nauk M.G. Sirotkina) i Instituta tuberkuleza Ministerstva
zdravookhraneniya RSFSR (dir.- kand. med. nauk T.P. Mochalova).

DUBYNIN, N.G., kandidat tekhnicheskikh nauk; DEKHTYAREV, S.I., inzhener;
PAVLOV, A.I., inzhener; VOLKOV, A.N., inzhener

Breaking ore by ring drilling in the Tashtagol mine. Gor.zhur. no.7:
38-40 Jl '55.   (MIRA 8:3)
        (Tashtagol--Iron mines and mining)

DUBYNIN, N.G.; KOVALENKO, V.A.; VOLEGOV, A.N.

      Advantageousness of borehole stemming. Trudy Inst.gor.dela.Sib.
      otd.AN SSSR no.1:129-133 '58.   (MIRA 12:11)
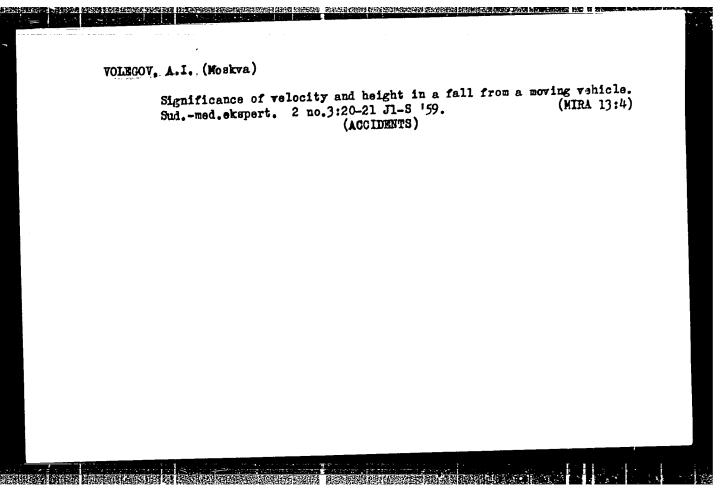   (Mining engineering)

KOCHUROV, Aleksey Stepanovich; NAZAROV, Aleksey Gavrilovich; ZASYPKIN,
Aleksey Georgiyevich; GIMMEL'MAN, Nikolay Robertovich; VOLKGV,
Andrey Fedorovich; NESTEROV, Boris Arkad'yevich; TROYANOV,
Andrey Konstantinovich; FILIPPOV, A.S., kand.tekhn.nauk, retsenzent;
RYAZANOV, K.I., inzh., retsenzent; ZAKHAROV, B.P., inzh., red.;
YERMAKOV, N.P., tekhn.red.

[Manual for modelmakers] Spravochnik rabochego-model'shchika.
Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959.
(MIRA 13:3)
379 p.   (Models and modelmaking)

VOLEGOV, A.I., (Moskva)

Significance of velocity and height in a fall from a moving vehicle.
Sud.-med.ekspert. 2 no.3:20-21 Jl-S '59.   (MIRA 13:4)
(ACCIDENTS)

VOLEGOV, A.I.

Action of tuberculin on the nervous system of intact and
vaccinated animals. Probl. tub. 41 no.10:72-78 '63. (MIRA 17:9)

1. Iz Moskovskogo nauchno-issledovatel'skogo instituta tuberkuleza
(dir. - kand.med.nauk T.P.Mochalova, zamestitel' direktora po
nauchnoy chasti - prof. D.D.Aseyev) Ministerstva zdravookhraneniya
RSFSR i kafedry normal'noy fiziologii (zav. - prof. G.I.Kositskiy)
II Moskovskogo ordena Lenina meditsinskogo instituta imeni N.I.
Pirogova.

YEMEL'YANOV, V.S., starshiy prepodavatel'; VOLEGOV, A.V., inzh.

Analytical determination of the parameters of a centrifugal vibra-
ting sorter. Izv.vys.ucheb.zav.; gor.zhur. no.3:143-148 '61.
(MIRA 15:4)

1. Sverdlovskiy gornyy institut imeni V.V.Vakhrusheva; rekomendovana
kafedroy obogashcheniya poleznykh iskopayemykh Sverdlovskogo
gornogo instituta.
(Asbestos)   (Sorting devices)

DIOMIDOV, A.P., dots.; VOLEGOV, A.V., inzh.

> Efficient recovery of short-fiber asbestos in core mills and can crushers. Izv.vys.ucheb.zav.; gor.zhur. no.2:137-144 '59.   (MIRA 13:4)
>
> 1. Sverdlovskiy gornyy institut imeni V.V.Vakhrusheva.
> Rekomendovana kafedroy obogashcheniya poleznykh iskopayemykh.
>   (Asbestos) (Crushing machinery)

DIOMIDOV, A. P., dotsent; MELKIKH, V. I., inzh.; VOLEGOV, A. V., inzh.;
        SHAGABUTDINOV, G. N., starshiy prepodavatel'

        Estimation of the work efficiency of drum screens employed in
        classifying asbestos concentrates. Izv. vys. ucheb. zav.;
        gor. zhur. 5 no.8:169-175 '62.   (MIRA 15:10)

        1. Sverdlovskiy gornyy institut imeni Vakhrusheva. Rekomendovana
        kafedroy obogashcheniya poleznykh iskopayemykh.

                (Screens(Mining))   (Asbestos)

SHCHEDRINSKIY, Mikhail Borisovich; VOLEGOV, Aleksandr Vyacheslavovich;
        MYULLER, Eduard Karlovich. Prinimali uchastiye: OGNEV, A.S.,
        inzh.; BELOV, M.A., inzh.; USTINOV, D.V., inzh., retsenzent;
        GORSHKOLEPOV, N.A., otv. red.; ROMANOVA, L.A., red.izd-va;
        SABITOV, A., tekhn. red.; IL'INSKAYA, G.M., tekhn. red.

        [Asbestos concentration] Obogashchenie asbestovykh rud. Mo-
        skva, Gosgortekhizdat, 1962.   233 p.   (MIRA 15:7)
             (Asbestos)   (Ore dressing)

L. 10285-66   EWT(1)/EWT(m)/EWP(t)/EWP(b)   IJP(c)   JD/GG

ACC NR: AP5025320   SOURCE CODE: UR/0126/65/020/003/0373/0378

AUTHOR: Fakidov, I. G.; Volegov, L. P.; Krasovskiy, V. P.

ORG: Institute of Physics of Metals, AN SSSR (Institut fiziki metallov AN SSSR)

TITLE: Magnetoelastic properties of antiferromagnetic compound MnAu₂

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 3, 1965, 373-378

TOPIC TAGS: intermetallic compound, antiferromagnetism, elastic modulus, magnetic property, elasticity, antiferromagnetic material, shear modulus, manganese compound, gold compound

ABSTRACT: Polycrystalline cylindrical samples of $MnAu_2$ were made by smelting at 1100C a mixture of Mn (99.98% pure) and Au (99.99%), subsequent casting, and heat treatment providing magnetic properties described by A. Meyer and P. Taglang (J. Phys. Rad., 1956, 17, 457). The intermetallic compound had a helicoid spin structure, a Néel temperature $T_N = 90C$, a threshold $H_t = 8000$ oe, and a density $\rho = 15.4$ g cm^{-3}. The changes in the shear modulus G and the Young modulus E were determined under changing conditions of temperature (20 - 140C) and external magnetic field. The curves showing relative changes of shearing modulus G/G_0

Card 1/2   UDC: 538.65+539.32

L 10285-66

ACC NR: AP5025320 ◯

(G_0 at 20C was 11.56x10 dyne/sq cm) with temperature were plotted for the sample in the antiferromagnetic (H = 0) and ferromagnetic state (H = 18,000 oe). The curve H = 0 showed that G decreased with increased temperature, reached a minimum at 800C, acquired a maximum in the Neel point (T_N = 96C), and decreased continuously in the paramagnetic region. The G of $MnAu_2$ changed little with increased field to the threshold value (H = 3000 oe), then sharply decreased and reached a minimum at H = 16,000 oe. The shearing modulus G of $MnAu_2$ in the ferromagnetic state (H = 18,000 oe) did not exhibit any noticeable anomalous changes during the antiferromagnetism → ferromagnetism transition in the Curie point. The changes in anomaly of the shearing modulus during the antiferro-magnetism-ferromagnetism transition were sharper than those of the Young modulus. This was related possibly to the helicoid distribution of magnetic moments. The anomalous behavior of the Young and shearing moduli was a result of disintegration of the helicoid spin structure brought about by the magnetic transformations antiferromagnetism → paramagnetism (T= T_N and H =0) and antiferromagnetism → ferromagnetism (T< T_N and H >H_t). Orig. art. has: 5 figures.

SUB CODE: 20 / SUBM DATE: 14Sep64/ NR REF SOV: 004/ OTHER: 007

Card 2/2 hw

SHTEYNBERG, M.M.; ZLATKINA, A.S.; VOLEGOV, L.P.

Kinetics of alloyed ferrite softening. Izv.vys.ucheb.zav.; chern.
met. no.7:117-124 '60.   (MIRA 13:8)

1. Ural'skiy politekhnicheskiy institut.
              (Steel alloys--Metallography)
              (Crystal lattices)

83287

9.2571   1144
           1163

S/148/60/000/007/007/015
A161/A029

AUTHORS: Shteynberg, M.M.; Zlatkina, A.S.; Volegov, L.P.

TITLE: The Kinetics of Alloy Ferrite Strength Drop

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallur-
giya, 1960, Nr 7, pp 117-124

TEXT: Information is given on an experimental investigation of ferrite
alloyed with nickel, chromium, molybdenum, tungsten, and of two high-
chromium ferrite steel grades (Table) subjected to external work
hardening by cold rolling and internal hardening by quenching. Rolling
with deformation to 90 and 30% was employed for alloy ferrite, and 60%
for "X17" (Kh17) and "X25T" (Kh25T) ferrite steel. Data of 18 previous
works /Ref 1-18/ were used in the study. Experiment details are included.
It was concluded that alloy elements maintaining increased strength of
metal at elevated temperature must raise the interatomic bond energy in
the ferrite lattice. Manganese, chromium and particularly tungsten and
molybdenum must increase the bond energy, whereas nickel and silicon
have no perceptible effect on it. It is to be assumed that plastic

Card 1/3

83287

S/148/60/000/007/007/015
A161/A029

The Kinetics of Alloy Ferrite Strength Drop

deformation and quenching reduces the near order degree /Ref 16/, and the
interatomic bond energy must drop. Therefore, the lower limit of the
recrystallization temperature threshold in alloyed ferrite rises less
considerably than the upper limit, and the effect of alloy elements on
the upper threshold limit position and the strength drop kinetics of
ferrite must depend on the increase in the near order degree in the
solution simultaneously with the strength drop, and on the temperatures
up to which the near order is conserved./ Quantitative effect of alloy
elements on the interatomic bond energy in the solid solution lattice may
be measured by changes of the characteristic temperature. Data on the
effect of alloying, machining and heat treatment on the characteristic
temperature of ferrite are summarized in the work /Ref 16/. This
temperature drops very considerably at plastic deformation of ferrite
alloyed with chromium, and at high deformations the temperature is the
same for chromium-alloyed and unalloyed iron /Ref 16/. To evaluate inter-
atomic bonds more reliably, the X-ray analysis data must be supplemented
by data of other investigation methods /Ref 18/, therefore the authors
investigated also the dependence of the normal elasticity modulus on

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83287

S/148/60/000/007/007/015
A161/A029

The Kinetics of Alloy Ferrite Strength Drop

temperature in annealed specimens of unalloyed iron and two alloys 180 mm long and of 5 mm in diameter. The modulus was measured by the dynamic method based on excitation of elastic vibration in the material. The modulus measurement error did not exceed 1.2%. The results show (Figure 4) that the normal elasticity modulus curve of the "H4" (N4) alloy is placed lower, and of the "X4,6" alloy (Kh4.6) higher than that of unalloyed iron. At a temperature rise above 600°C the normal elasticity modulus of N4 alloy drops more intensively than that of unalloyed iron and still more intensively than that of the Kh4.6 alloy. This result, in conjunction with the data obtained on the strength drop kinetics in alloy ferrite, shows that nickel not only does not increase but probably even decreases the interatomic bond energy in the ferrite lattice at recrystallization temperature. There are 4 figures and 18 references: 13 are Soviet and 5 English.

ASSOCIATION: Ural'skiy politekhnicheskiy institut (Ural Polytechnical Institute)

SUBMITTED: March 16, 1959

Card 3/3

S/137/61/000/007/025/072
A060/A101

AUTHORS: Benyakovskiy, M. A.; Suyarov, D. I.; Volegov, V. P.

TITLE: Calculation of reduction schedules and of roll profile for coil rolling mills

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 7, 1961, 8, abstract 7D47 ("Tr. Konferentsii: Tekhn. progress v tekhnol. prokatn. proiz-va". Sverdlovsk, Metallurgizdat, 1960, 440-448)

TEXT: An equation for the roll profile and an equation expressing the linear dependence between the rolling stress and the strip thickness (the line of equal relative reduction) are derived on the basis of the condition for uniform reduction in width of a strip. A graphical method is proposed for determining the reduction schedule for cold rolling of tapes with thickness 0.28 mm from strip steel 08кп (08kp) with initial dimensions 2.2 x 735 mm. The method is based on the simultaneous solution of the lines of equal relative reduction in strip width and the reduction curves.
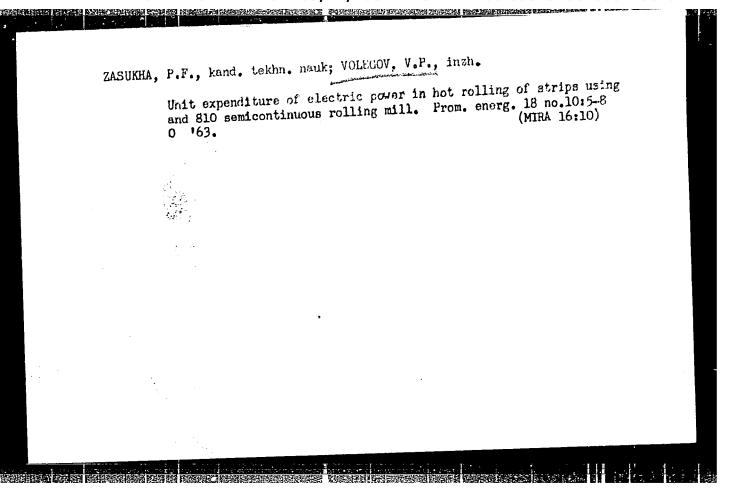
V. Pospekhov

[Abstracter's note: Complete translation]

Card 1/1

ZHDANOV, A.A.; VOIEGOV, V.P.; SHILKIN, Yu.V.

The fusing together of cold rolled strips during annealing.
Metallurg 10 no.8:27-28 Ag '64.

(MIRA 17:11)

1. Novosibirskiy metallurgicheskiy zavod i Ural'skiy nauchno-
issledovatel'skiy institut chernykh metallov.

ZASUKHA, P.F., kand. tekhn. nauk; VOLEGOV, V.P., inzh.

Unit expenditure of electric power in hot rolling of strips using and 810 semicontinuous rolling mill. Prom. energ. 18 no.10:5-8 O '63.

(MIRA 16:10)

BENYAKOVSKIY, M.A.; VOLEGOV, V.P.

Increasing the speed of roughing operations in cold strip
rolling. Metallurg 5 no.6:25-26 Je '60.

(MIRA 13:8)

1. Ural'skiy nauchno-issledovatel'skiy institut chernykh
metallov.

(Rolling (Metalwork))

8/133/63/000/002/009/014
A054/A126

AUTHOR: Volegov, V.P.

TITLE: At the Ural'skiy nauchno-issledovatel'skiy institut chernykh metallov (Ural Scientific Research Institute of Ferrous Metals)

PERIODICAL: Stal', no. 2, 1963, 156 - 157

TEXT: The distribution of forces and reduction on the 2,800 and 1,700 mm continuous strip mills of the Cherepovetskiy metallurgicheskiy zavod (Cherepovetsk Metallurgical Plant) were investigated. Based on the tests the rolls of the first and second stand of the 1,700 mill were given a concave shape. This new profile reduced the amount of waste and products of second grade owing to waviness and corrugation from 2.95 to 0.8 - 1.2%. On the 2,800 mill the forces involved in rolling 19 Г (19G) grade (thick) strips were studied. When rolling temperature was reduced by 60 - 70°C the forces acting on the rolls in the most difficult passes exceeded the permitted values. Conditions were, therefore, established for rolling with a uniform distribution of forces at a given end temperature of the rolling process. 9 x 2,505 mm strips with an end temperature of rolling above 850°C could be rolled in 7 passes instead of 9.

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S/130/60/000/006/009/011

AUTHORS: Benyakovskiy, M. A., Volegov, V. P.

TITLE: Intensifying Reduction Conditions in Cold Rolling of Strips

PERIODICAL: Metallurg, 1960, No. 6, pp. 25-26

TEXT: The authors together with V. K. Fridrikhsen studied the possibility of intensifying reduction conditions in cold rolling of carbon and alloy steel strips on the 740-rolling-mill. The mill consists of 3 stands, and is intended for rolling 650 mm wide strips of 2.5-4.5 mm initial and 0.5-2.0 mm final thickness. Data on rolling conditions of basic strip dimensions (Table 1) show that in some cases the metal pressure on the rollers and the motor loads were below the permissible values. To determine a possible raise in the efficiency of the mill experimental rolling with greater reduction or without intermediate annealing was carried out. It was established that in rolling 40, 30XГСА (30KhGSA) and 65Г (65G) steel strips intensified reduction did not cause an increase in the metal pressure on the rollers and in the motor load above the permissible amounts. The experiments proved moreover that in rolling 08кп (08kp) steel strips of 2.5 x 600 initial and 0.8 x 600 final dimensions in one pass, the motor load of the first stand exceeded the nominal value. As a

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S/130/60/000/006/009/011

Intensifying Reduction Conditions in Cold Rolling of Strips

result of the tests 40 and 30KhGSA steel strips were rolled not in two but in one pass, in accordance with the reduction condistions given in Table 2. For rolling 20sp and 08kp steel strips metal of 2.0 instead of 2.5 mm thickness was used and, as a result steel, strips of required demensions were obtained in one pass. The use of one pass instead of two raised considerably the efficiency of the mill. There are 2 tables.

ASSOCIATION: Ural'skiy nauchno-issledovatel'skiy institut chernykh metallov
               (Ural Scientific Research Institute of Ferrous Metals)

Card 2/2

ZASUKHA, P.F., kand.tekhn.nauk; LAZUTIN, A.G., inzh.; ZAVERYUKHA, A.Kh.,
inzh.; VOLEGOV, V.P., inzh.; FRANTSENYUK, I.V., inzh.

Selection of an efficient type of sheet rolling mill. Stal' 21
                                               (MIRA 14:12)
no.12:1090-1092 D '61.

1. Ural'skiy nauchno-issledovatel'skiy institut chernykh metallov
i Novolipetskiy metallurgicheskiy zavod.
                  (Rolling mills)

VOLEGOV, Ya. (Leningrad)

The shop committee is the organizer of competitions. Sov.
profsoiuzy 4 no.2:58-59 F '56.   (MLRA 9:5)

1. Normirovshchik tsekha No. 3 fabriki imeni Khalturina.
          (Leningrad--Efficiency, Industrial)

VCLEJNIK, B.

VCLEJNIK, B. V. Sladecek's Trhaci prace v hlubinnych dolach (Blasting
            Operations in Deep Mines); a book review. p. 398.

Vol. 5, No. 11, Nov. 1955
UHLI
TECHNOLCGY
Praha, Czechoslovakia

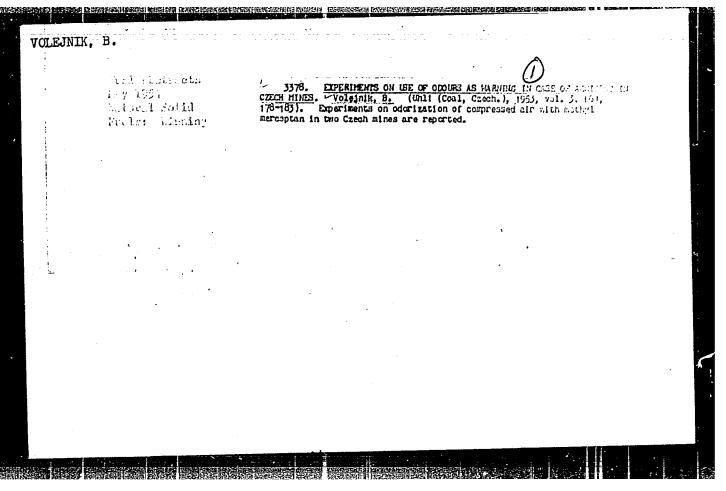SC: East European Accessions, Vol. 5, No. 5, May 1956

VOLEJNIK, B.

    Regulations aimed at reduction of the accident rate during blasting operations
in British mines.   p. 214.
    UHLI, Praha, Vol. 5, no. 6, June 1955.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, no. 10, Oct. 1955,
    Uncl.

VOLEJNIK, E.

Stefek, M. Experiments in .cch. with the ....../.. ....
UHLI, Praha, Vol. 5, no. 3, Mar. 1955.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, no. 10, Oct. 1955,
Uncl.

VOJEJNIK, B .

"Experiments with aromatic signaling of mine accedents in our mines."
Uhli, Praha, Vol 3, No 6, June 1953, p. 178

SO: Eastern European Accessions List, Vol 3, No 10, Oct 1954, Lib. of Congress

VOLEJNIK, B.

Ref. Abstracts
by 1954
Subject Solid
Field: Mining

3378. EXPERIMENTS ON USE OF ODOURS AS WARNING IN CASE OF ACCIDENT IN CZECH MINES. Volejnik, B. (Uhli (Coal, Czech.), 1953, vol. 3, (6), 178-183). Experiments on odorization of compressed air with methyl mercaptan in two Czech mines are reported.

VOLEJNIK, J.; HOUSTEK, J.; VALACH, V.; BENDA, K.; VYHNALEK, J.

Familial mucoviscidosis-like illness with psychomotor retardation in 3 sisters. Cesk. pediat. 20 no.3:421- 424 Mr '65

1. Aus der medizinischen Fakultät der Palacky-Universität, Olomouc; Kinderklinik; Pathologisch-anatomischen Institut; Roentgenologischem Institut und aus der II. Kinderklinik der Paediatrischen Fakultät der Karls-Universität in Prag.